



Eucalyptus scoparia



Collecting *Zieria formosa*



NSW Seedbank

Research program

Research provides knowledge to complement and improve seed collection and storage activities, as well as enhancing our understanding of native flora. Researchers investigate the seed biology of NSW native species, targeting groups considered difficult to germinate or store and plants of conservation or horticultural interest, including orchids and native Cumberland Plain Woodland species such as those in woodland remnants at Mount Annan Botanic Garden.

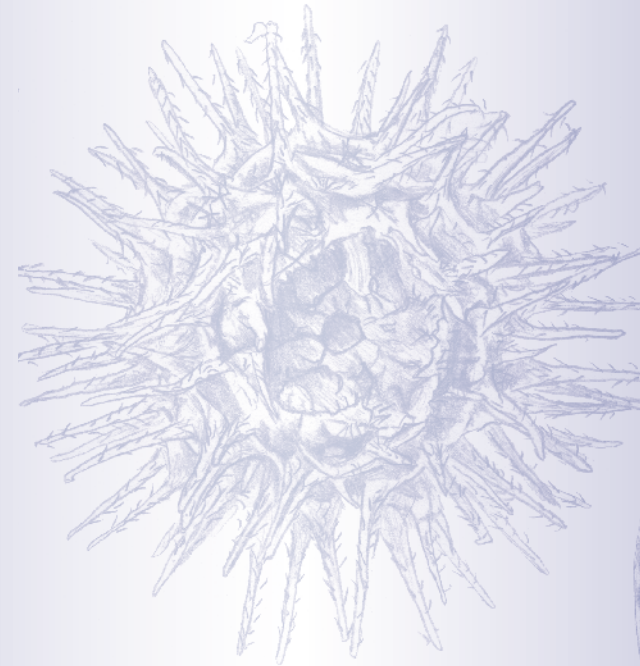
Our research aims to:

- Improve the quality of seed collections held in the NSW Seedbank to ensure optimal long-term storage
- Determine the best methods to germinate seed, including breaking dormancy in some species
- Estimate how long seeds are likely to survive in storage, using rapid ageing techniques
- Identify desiccation sensitive species and investigate alternative storage methods
- Assist with restoration of degraded vegetation and threatened species management by providing information to other government agencies, land managers and the public.

Enquiries

Seedbank Manager
Mount Annan Botanic Garden
Mount Annan Drive
Mount Annan NSW 2567
Ph: 02 4634 7900

www.rbg Syd.nsw.gov.au/seedbank



PRINTED ON RECYCLED PAPER



Grevillea robusta



Senecio diaschides



Xanthorrhoea glauca



Acacia paradoxa



Eucalyptus dawsonii



Pittosporum angustifolium

Conserving New South Wales flora

The flora of New South Wales is highly diverse, with over 6,000 species of vascular plants, making it an important component of our national biodiversity. Our native vegetation has changed dramatically since European settlement, with over 600 species now considered endangered or vulnerable in the State. Vegetation clearing, weed invasion and climate change are recognised as some of the key threatening processes affecting our native flora, increasing the need for complementary on-site (in situ) and off-site (ex situ) conservation work.

Well sampled and documented seed collections are an efficient means of conserving genetic diversity for future conservation work. For this reason, seedbanking is playing an increasingly important role in plant conservation. The NSW Seedbank, a part of the Botanic Gardens Trust, Sydney, is the leading facility for ex situ seed conservation in New South Wales.

The NSW Seedbank facilities

Established in 1986 as part of Mount Annan Botanic Garden, the NSW Seedbank underwent a major upgrade in 1999. Facilities now include a walk-in freezer and cool room, purpose-built drying room, seed testing room, temperature controlled germination cabinets and

specialised seed cleaning equipment. The Seedbank currently holds over 9,400 collections, making it one of Australia's leading native seed storage facilities.

Most seeds are collected from the wild, with a focus on NSW species. Collection details are linked with associated herbarium specimens, propagation and living plant records in the Botanic Gardens Trust collections management system, providing a central information source.

Seed storage and testing

After collection, seeds are cleaned of debris, dried to a low moisture content, germination tested and stored at low temperatures (-18°C). These conditions extend the storage life of the seed, with some species lasting for potentially hundreds or even thousands of years.

Seed collections are monitored over time to ensure that they maintain viability. If viability falls too low, a new collection of that species will be made, or plants will be regenerated to produce fresh seed for collection and storage.

Using the seed

Since its inception, the Seedbank has been used for living collection development across the three Botanic Gardens Trust estates. Seed is also used for a variety of research projects, for regeneration of native plant communities, and a proportion of seed collections are held for long-term preservation.

The conservation role of the Seedbank is recognised in the Threatened Species Priorities Action Statement developed by the NSW Department of Environment, Climate Change and Water, with seed collections being an important ex situ conservation strategy. Storage and research work at the NSW Seedbank has already contributed to the conservation of several NSW threatened species including the endangered *Eucalyptus copulans*, *Allocasuarina portuensis*, and the Wollemi Pine (*Wollemia nobilis*).

Partnerships and the future

Since 2003, the NSW Seedbank has been a part of the Millennium Seed Bank partnership, with the Royal Botanic Gardens, Kew, UK. This global conservation program aims to conserve 25% of the world's wild plant species by 2020. The NSW Seedbank is also a member of the Australian Seed Bank Partnership, a national network of conservation seedbanks which aims to secure our threatened species and support ecological restoration.

Our research team works closely with scientists studying native seed biology in other parts of Australia, as well as with the Millennium Seed Bank team in the UK. Building on the success of our existing program, we are currently implementing a new world-class conservation facility, PlantBank, which will house not only our seed collections, but also be a place for research, education and visitor interaction.